



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

(*Tulastoma*) under the *Lycoperdeæ*. Much attention is given in this, as in others of Mr. Massee's articles, to synonyms and references to literature, and a complete Bibliography is appended, besides the very full references in the description of species.

The plates are excellent, both from an artistic and a scientific point of view.—E. A. S.

WAGER, HAROLD W. T. *Observations on the Structure of the Nuclei in Peronospora parasitica, and on their behaviour during the formation of the Oospore.* Annals of Botany, November, 1889, pp. 127-146. One double plate.

The fact that even the general occurrence of nuclei in fungi has been and is disputed, and that only two observers have ever made any attempt to investigate the phenomena of karyokinesis, even where the presence of nuclei was unquestioned, renders this paper unusually interesting.

The best results were obtained by imbedding the material in paraffine and cutting ribbon sections with a Cambridge microtome. By means of this process, the details of which are given, nuclei were found and their division watched in every portion of the fungus.

In the hyphæ.—The nuclei are most numerous where the hyphæ appear to be completely full of protoplasm, and in well stained sections the chromatin can be seen to arrange itself into threads, which are arranged in the equatorial plane, and which finally separate into two groups, the divisions moving to the opposite poles of the nucleus. Neither the spindle nor the longitudinal splitting of the chromatic elements were observed.

In the oogonium and antheridium.—Large numbers of nuclei are present in both oogonia and antheridia; in the former they become arranged in a layer in the periplasm, and all, with those of the antheridium, pass simultaneously through the karyokinetic processes; two (or three?) of the nuclei of the oogonium then pass into the center, and a wall is formed, shutting out the periplasmic nuclei which rapidly divide into smaller ones. At the same time an antheridial tube is developed, into which some of the nuclei of the antheridium pass. Of these one probably passes into the oospore; the remainder seem to pass into the periplasm of the oogonium, when the antheridial tube becomes disorganized. The ripe oospore contains several nuclei, and its endo- and exo-spore are formed from the periplasm and nuclei contained in it.

In the gonidia.—The nuclei of the gonidia are larger than those of other portions of the fungus, and differ in structure. There are a large number in each spore, but neither their division nor their origin has been observed.—E. A. S.

WARD, H. MARSHALL. *Timber and Some of its Diseases.* 8mo., 295 pages. Macmillan & Co.

The author, in this little volume, although treating the subject in a somewhat popular way, will especially interest the readers of this

JOURNAL, by his descriptions of the various diseases to which our forest and fruit trees are subject. Of the thirteen chapters, seven are devoted to the descriptions of the modes of growth of specific fungi which have, from their abundance and destructive nature, attracted the attention of tree growers.

Those which receive considerable attention, are the following :

Trametes radiciperda, Htg., the principal cause of "wet rot" or "red rot" of timber; *Agaricus melleus*, Secr.; *Polyporus sulphureus*, Scop.; *P. vaporarius*, Krombh., and *Merulius lacrymans*, (Jacq.) Fr., causing conjointly "dry rot;" *Peziza Willkomii*, Htg., pathogenetically connected with the larch disease or "canker;" *Coleosporium senecionis*, (Fr.) Pers. (*Peridermium pini*) the cause of the "pine blister;" and *Phytophthora omnivora*, DBy., which produced the "damping off" of young seedlings. The author has endeavored in the descriptions of these diseases to put the whole matter in such language that those unacquainted with the terms of cryptogamic botany may understand, and has devoted a large portion of each chapter to the dangers from these parasites and the most reasonable methods of avoiding such.

While chapter IV, on the theories advanced to explain the ascent of water in tall trees, is perhaps too technical to harmonize well with the other chapters, it will be found one of the most interesting because it brings together in comparison for the first time in any English work, all the prominent theories, old and new, in regard to sap ascension in forest trees.

The well-known theory held by Sachs that the sap ascends through the substance of the cell walls by reason of an extraordinary activity inherent in imbibed fluid, the author is willing to abandon for Hartig's and Godlewskii's osmosis pressure theory which takes refuge in the respiration of protoplasm to furnish the lifting force. According to the views of these investigators the sap ascends by means of the tracheids of the alburnum, and is drawn or forced upwards by a periodic change which the adjacent cells of the medullary rays undergo, by reason of which they alternately absorb water from the tracheids below and expel it into those above.

The remarks upon the healing of wounds by occlusion contain many warnings against the habit altogether too common among fruit-growers and foresters, of allowing freshly broken or cut surfaces of growing trees to remain exposed to the dangers so imminent, from the hosts of parasitic fungi which only await such opportunity to gain a foothold in the tree. As might be expected, repeated references to the work of Hartig and other investigators are met with; but, throughout, the book is well worthy attention.—D. G. F.

SWINGLE, W. T. *A List of the Kansas Species of Peronosporaceæ.*

Transactions of the Twentieth and Twenty-first Annual Meetings of the Kansas Academy of Science (1887-'88). Vol. XI, p. 63.

This State list, the largest one yet published we believe, containing 32 species of *Peronosporaceæ*, a family acknowledged to flourish best in a